Food Waste Extraction and Management System (FWEMS)

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Solving World Hunger & Homelessness Simultaneously

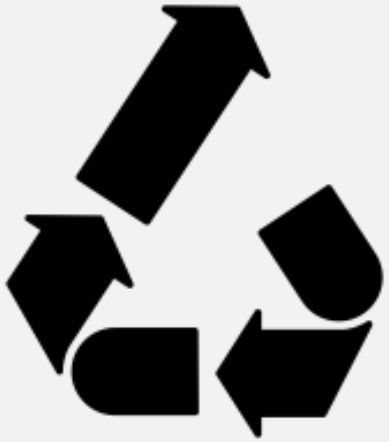
Problem

Find a sustainable solution to upcycle agricultural waste products

- Specifically streptomyces contaminated wheat

Problem

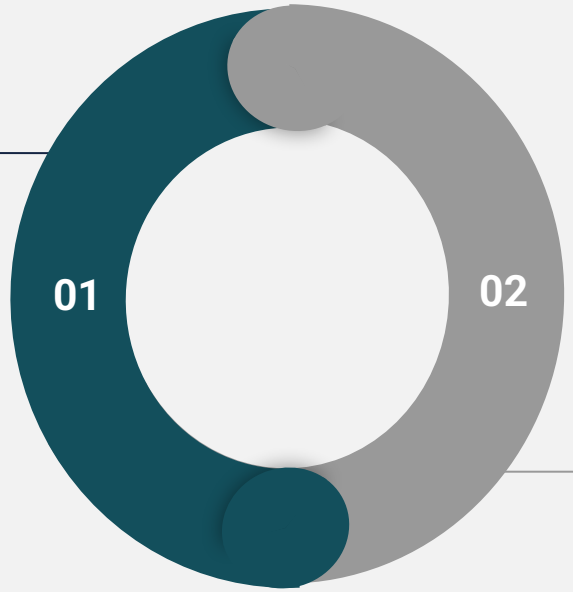
All secondary resources must have their own respective up-cycled application



Our Solution

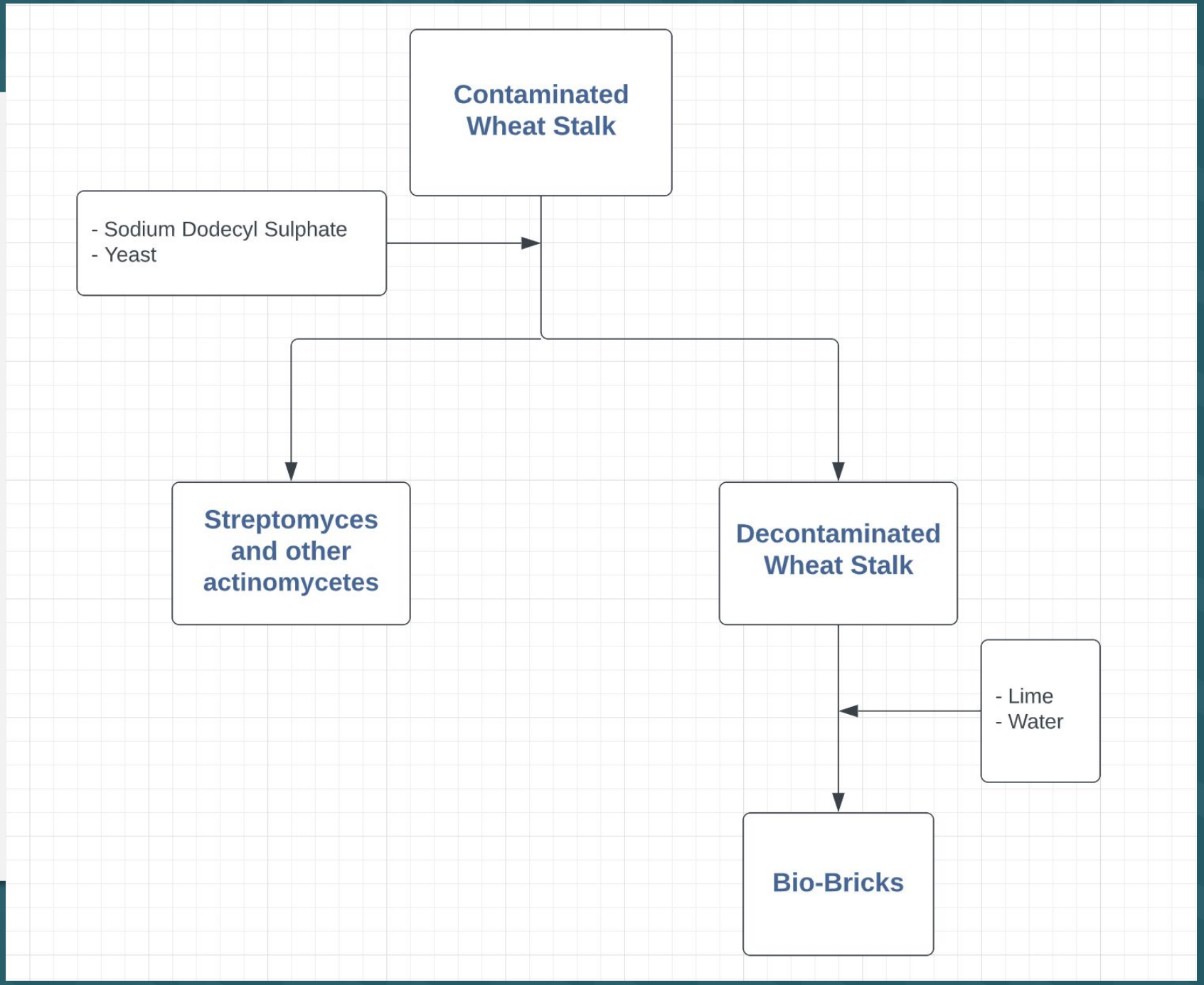
What we addressed

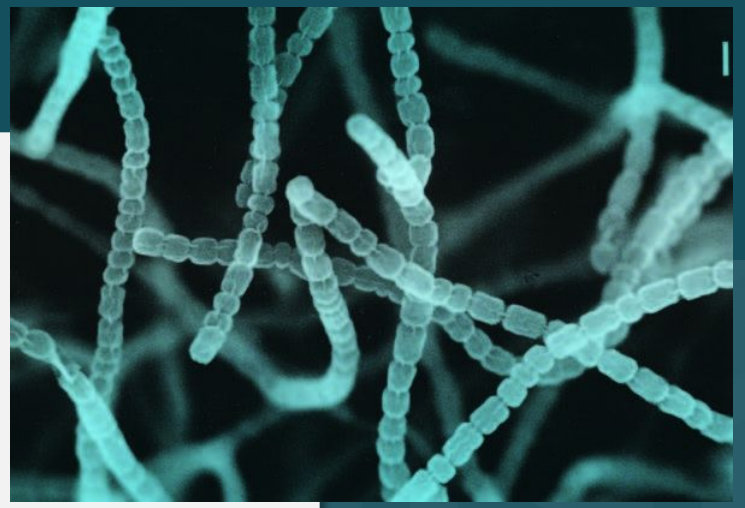
The contaminant



The leftover after treatment

Solution





Solution:
Streptomyces

- Remove streptomyces from the contaminated agricultural waste
- Uses 2.5% yeast and 0.1% SDS solution
- Heated to 30°C and maintained for 30 minutes

Solution:
Streptomyces
Benefits

- Used to promote plant growth
- Bio-control
- Cultivated actinomycetes have a projected economic market value of $7 billion

Solution:
Bio-Bricks

- Effective use of leftover products
- Minimal energy required
- High upcycle value

Some Limitations

Potential degradation of lignin due to SDS & streptomyces:

- Not present in high enough concentrations to have significant effects

Limited research in Bio-Bricks:

- Can be reused once it degrades

Factory size and feasibility:

- Can be scaled accordingly
- Factories can be repurposed

Cost Breakdown

EXPENSE	Cost (USD)
SDS	$3.00/ kg
Yeast	$34.7/kg
Lime	$0.188/kg
Factory Construction	$3.5 million

$$$

Other applications

- Bio-Brick production can also use food waste and is not limited to agricultural waste
- Some other extracted actinomyces have pharmaceutical uses

Thank You

Summary:

- Streptomyces
  - bio-control, plant growth, profit, pharmaceuticals
- Bio-Bricks
  - effective use of leftover products, high upcycle value